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Why Isn't there a Garden at School?

Assessing Five River Metro Parks' Green Schoolyards Program



Honors Thesis

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Department: Sociology, Criminal Justice, Social Work, and Anthropology

Advisor: Jeanne Holcomb, Ph.D.

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Abstract

School gardens have been shown to have positive effects on children's academic performance and personal lives. Five Rivers' Metro Parks has a program in place to encourage and assist schools, within the Dayton region, to implement school gardens and/or habitats. This research examines the efficacy of the Green Schoolyards program through surveys and interviews with teachers and staff of 15 schools where the program has made at least one contact. This research will help inform the Five Rivers staff by identifying perceived benefits and constraints related to implementing school gardens, and may facilitate the expansion of the Green Schoolyards program. Results indicate an alignment with the literature of positive outcomes of school gardens. Analysis of the data also shows that the program has been helpful for many schools but the Metro Parks can improve their efficacy by turning some of their focus towards supporting self-capacity among and between schools supporting the green schoolyards initiative.

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Literature Review

School Gardens Re-emerge

School gardens started gaining popularity around the 1890s when people began viewing them as civic engagement opportunities (Lawson 2005). Multiple educational frameworks and studies have commented on the many potential and correlational benefits of school gardens and for about three decades, school gardens were encouraged and even commonplace. However, at the end of World War I school gardens quickly began to decline as funding on the federal and local level disappeared and gardens at home became more common instead (Trelstad 1997). In the early 2000s when cases of childhood obesity numbers and resulting health issues became starkly apparent to the general U.S. population, school gardens began to pick up in popularity again as they were perceived by many as a way to introduce children to the types of food which “should” be eaten and encourage kids into a healthful way of eating in order to lower cases of child obesity and health concerns (Hayes-Conroy 2010). This idea of teaching kids exactly what “should” be eaten is a critique of school gardens because there is worry that it is teaching kids to be consumers and striving to fit a body composition mold within society (Hayes-Conroy 2010). Nonetheless, research done to measure the effects of gardening nutritional programs for school children proved to be successful in increasing choices of healthful produce and decreasing obesity rates (Morris and Zidenberg-Cherr 2002; Veugelers and Fitzgerald 2005). Moreover, in some cases, school gardens make produce available in areas where it would normally not be readily available. The effects of school gardens on children extend beyond the simple and important lessons of healthful eating into a healthy mind and connection to other living things.

Agenda 21

School gardens are a specific type of community garden, this broader category has also experienced an influx in recent decades. One cause of this influx is the implementation of Local Agenda 21. Agenda 21 was agreed upon by the United Nations in Rio at the UN conference on environment. Local Agenda 21 is a more specific call to action for governments' to commit to supporting sustainable developments, particularly at the local level, (Roddick and Dodds 1993; Ferris et al. 2001). Thus, school gardens, which by their nature are community and locally focused, are supported by this call to action as local entities get involved in the sustainable practice of gardening, growing food locally and/or supporting biodiversity by protecting or creating habitats.

No Child Left Inside

Another recent development that has led to an increase in school gardens is the introduction of the No Child Left Inside Act. This act was introduced by Congressman John Sarbanes and Senator Jack Reed as a result of the research which indicates benefits of children's regular interaction and connection with nature. The act would be an amendment to the Elementary and Secondary Education Act of 1965 requiring environmental literacy to be a part of core curriculum (H.R. 882 –114th Congress 2015; Oberbillig et al. 2014). Though, there has been little action with the act since April of 2015 when it was referred to the Subcommittee on Early Childhood, Elementary, and Secondary Education, there are local committees and collaboratives developing around the ideas detailed in the proposed No Child Left inside Act (H.R. 882 –114th Congress 2015).

Edible Schoolyard Project

Much of the literature on school gardens reference Alice Walker as a leader in the movement to educating children in sustainable food-production. In her view school gardens are a central part of solutions to dealing with issues which stem from a mass food production which is consistently contributing to climate change and inadvertently negatively affecting food production methods and capabilities. Alice Walker envisioned school gardens to not only contribute to sustainability education for the children but also a space for children to think freely, question, learn, and to grow in connection with nature and each other (Laird 2014). Walker made this vision a reality by developing the Edible Schoolyard Project (ESY) starting at Martin Luther King Jr., Middle School in Berkley, California and spreading across the States. The ESY provides nourishment for students not only literally through food production but also in the coeducation happening throughout the process. This coeducation is holistic in encouraging curiosity among students while teaching content and supporting wellness (Laird 2014).

Self-Help?

Some scholars fear that this notion of school gardens being a way for students to take control of their food availability and consumption emphasizes an ideal of self-help and they fear that more stress will be applied on the local level to fix issues which are being neglected to be filled on the state level. Others see this action of maintaining an alternative access to sustainable education, food production, and connection to nature as a resistance to allowing state responsibility failures to determine their access to what they need and value. Hayes-Conroy (2010) finds that there is certainly a presence of this self-help attitude but that it is slight. Children certainly take ownership of their local

environment but it actually produces more of a spirit of questioning the responsibilities of the state and pressure to fulfill those responsibilities (Hayes-Conroy 2010). In some cases, larger public gardens that are supported by government and have more resources at hand, partner up with schools in order to provide some sustainable community education and even job skills training (Gough and Accordini 2013).

A Space for Political Development

The spirit of questioning and exploring is a big part of the benefits of school gardens, in addition to the nutritional and skills based learning. For one, the garden, though generally maintained as a “bi-partisan” space, was found to be a politicized environment where children questioned the roles of different stakeholders in the current food production system and explored best practices. Children also developed and exercised a lot of creativity in different school garden programs as they were free and encouraged to do so (Hayes-Conroy 2010). While looking into the critique of the encouragement of self-help attitudes and consumerism in school gardens, Moore and colleagues (2015) found that affective labor or immaterial labor is a big part of school gardens which undercut a simple individualistic look at capitalistic production and outcomes. Immaterial labor refers to production which does not necessarily provide a traditional wage but does lead to emotional and social benefits. The ability to labor and play in the school gardens was found to lead to an increase in interactions of imagination and believed to be powerful in working to change the inequitable structures of society as opposed to merely reproducing current societal relations (Moore et al. 2015).

Health in Spirit and Mind

The ability for students to work together and understand systems affecting their livelihood and those around them is a sign of mature development. Children are learning to trust the experiences of others and recognize the power of the interconnectedness of lives. In his book, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, Richard Louv (2005) tells readers some of the reactions students share as a result of their participation in school gardens. Many talk about how much they enjoyed learning but they also share the connections they have now with people they did not know or talk with previously. They shared a common interest and goal in their school nature projects and came to protect and care for their sites as a collective (Louv 2005). Alice Walker envisioned this natural effect of school gardens, as gardens are a place where children are free to just be, they are capable of coming together in community working and helping each other (Laird 2014). The State Education and Environmental Roundtable which put together the Environment as an Integrating Context for learning (EIC) framework provides multiple suggestions of ways in which school gardens and nature sites can be incorporated into education's common core studies of math, science, English, and history. They emphasize that the context of the surrounding community and environment improves minds and feelings of connectedness and that is part of the reason including nature as a part of school education is so beneficial. The framework can be applied to multiple disciplines because the mind and spirit is improving, supporting learning on any topic (Lieberman & Hoody 1998).

Social Inequity Reproduction

This issue of societal inequities is apparent in school gardens as the availability and resources are different across schools and the education attached to the gardens are sometimes not culturally inclusive of everyone. Thus, a reproduction of classism and white supremacy was found to be a valid concern especially as it relates to empowering students (Hayes-Conroy 2010; Moore et. al. 2015). School gardens should not be assumed to be a progressive site without examining the relationships and accompanying education. It is clear that there are many potential positive benefits of school gardens in learning, imagination, empowerment, creativity, relationship building, sustainable action, etc. However, research also shows there are concerns in the philosophical and practical frameworks accompanying school gardens which can hinder or promote success for the students who take part in the use of the site.

Dayton, Ohio Five Rivers Metro Parks

Five Rivers Metro Parks, an outdoor engagement and educational park system in the Dayton, Ohio region has a program to promote and assist in the implementation of school gardens called the Green Schoolyards program. So far there has not been any comprehensive research focused on assessing the Green Schoolyards program which provides initial educational tools on school gardens and support through consultation and site visits. There are clearly many factors which may play into the success or failure of school gardens, not only overall but in terms of each student's individual and collective interaction with the garden. Research on the presence and effects of gardens, as interpreted by staff and faculty at schools where the Five Rivers Metro Parks' Green

Schoolyards Program has had contact, can help to improve the Green Schoolyards program in its initial educational services as well as the structure of its on-going support.

Dayton, Ohio, a part of the Miami Valley region, particularly warrants attention in regards to alternative food movements such as community gardening and more specifically school gardening. This is due to the fact that Dayton is a food desert, ranking as the worst city for food hardship within Ohio and 9th in the country (McHenry 2016). A food desert is an area where people lack access to healthy, affordable, and culturally-appropriate food. Many people within the Dayton region are essentially forced to buy processed and packaged food from corner markets or gas stations where the price is way above what it would be in a grocery store. Others, spend a significant portion of their day trying to get across town riding the bus and walking to get fresh produce and healthy food (McHenry 2016). An improvement in the community resource of the Five Rivers Metro Parks School Gardens program will hopefully lead to not only more school nature sites but also an improvement in the interactions and incorporation of the sites into student life and learning.

Methodology

Context

The Metro Parks Green Schoolyards program, interested in research which could contribute to an increase in their efficacy met with the researcher to discuss information they had and were interested in obtaining. The Five Rivers' Metro Parks provided a list of 50 schools where they had at least one contact with a faculty or staff member currently or previously at the school.

Instrumentation

In order to reach a wide range of people in multiple schools while also recognizing the immense variability in potential participants' connection to the Green Schoolyards program and garden initiatives, a free-response survey was constructed. Free-response surveys present a participation challenge as less people may be willing to take the time to write out answers, thus the survey was kept to a minimal length to make it more manageable.

The first three questions of the survey asked what school the participant was located, whether the participant knew of the Green Schoolyards program, and whether their school had a garden. If the school did have a garden they were asked to proceed to questions 3-10. If the school did not have a garden they were asked to proceed to questions 11-16. Question 3 asked about the ability to incorporate the garden into the classroom, questions 4-6 asked about attitudes of parents and students towards the garden, question 7 asked about correlations with behavior change and the garden, question 8 asked about challenges faced, question 9 asked about any other positive benefits not already shared, and question 10 asked about how helpful the green schoolyards program was in the success of the garden. Question 11 asked about possible

reasons why there is no school nature site, questions 12-14 asked about desires, challenges, and benefits associated with a school garden, and questions 15-16 asked about ways the Green Schoolyards program could help. The complete survey is shown in the Appendix.

Interviews were another instrument used to allow for more in depth discussions related to the survey questions. These were non-structured and ranged from being 20 minutes to being over an hour long based on how much the participant had to share.

Participants

In order to send out the surveys and conduct the interviews, Institutional Review Board (IRB) approval had to be secured. A part of the IRB approval process required getting permission from the school's principal or superintendent to send surveys and conduct interviews with their schools faculty and staff. Requests for permission were sent out to the principals of all 50 schools from the list the Metro Parks provided, 15 of these schools gave permission via principal or superintendent. Survey links were then sent to the principals of these schools and they were asked to forward on the message and links to their faculty and staff. In all cases, participants were given an electronic copy of an Invitation to Participate, approved by the Institutional Review Board, and asked to read over it before beginning the survey or interview. The Invitation to Participate informed participants that their involvement was completely voluntary, they could end their participation at any time, and that any identifying information with responses would be kept confidential between the researcher and their advisor. One reminder/follow-up email was sent to the principles in both cases of asking for permission as well as sending out the actual survey.

In order to maintain confidentiality, two links were provided to teachers. One link was to the actual survey, the other asked only about interest in participating in a follow-up interview. This ensured that an email was only tied to interview interest so the researcher could contact those who said yes without having responses to survey questions tied to those email addresses. All interviews were recorded (after being given permission to do so) and stored safely on the researcher's computer with non-identifying titles. A separate document that only the researcher had access to, matched the random titles of the interview recording files with the actual name of person interviewed.

Background information of the schools have been researched and recorded:

	Private/ Public/ Charter	Percentage of students receiving free or reduced lunch	Garden (Y/N)
School #1	Public	29.8%	Yes
School #2	Charter	84.1%	No
School #3	Charter	55.5%	Yes
School #4	Public	51.5%	No
School #5	Public	68.6%	Yes
School #6	Public	41.7%	Yes
School #7	Public	69.9%	Yes
School #8	Private		No
School #9	Private		Yes
School #10	Public	35.9%	Yes
School #11	Private		Yes

There were a variety of traditional public, charter public or community, and private schools included in this research. Within each type of school, there was at least

one school with and one school without a garden. It is interesting to note that the school, out of the eleven included, with the highest rate of poverty (as measured by the percentage of students receiving free or reduced lunches) does not have a school garden. Though the schools 2nd and 3rd highest in terms of poverty do have school gardens, this raises questions about why the school that could potentially benefit the most from having a school garden does not have one.

Due to the fact that school participation depended on (a) the school principal (or superintendent in some cases) approving that the surveys and optional interviews be offered for their faculty and staff, and (b) the principal sending out the survey to individual staff and faculty members, the data collected may not be generalizable to all schools in the Greater Dayton region. Few schools responded back saying they did not approve surveys and interviews, rather many just did not respond at all.

Analysis

Analysis of the survey and interview data occurred through coding (Chambliss & Schutt, 2013). This took place throughout the process of collecting the data. Survey data and interview notes were read over at least three times, the first was to just get a sense of what responses looked like, this was done as the data came in. The second time everything was read through was once all the data had been collected, at this point themes were identified. This was followed by a third read through of all the data in which these themes were confirmed as being relevant and other interesting concepts/ideas were identified.

Results

Three questions guided this research: (a) What are the benefits of school nature sites identified by schools with gardens and perceived by schools without? (b) What are challenges schools with and without nature sites have experienced in regards to the gardens or habitats? (c) How can the Five Rivers' Metro Parks improve the Green Schoolyards program to help expand benefits experienced with school nature sites and alleviate challenges in starting/maintaining a school garden? Key findings follow, organized in three sections based on the three guiding research questions.

Benefits

In regards to the first question there were many benefits reported from schools with nature sites and anticipated by schools without them.

Benefits of School Gardens Identified by	Schools with gardens	Schools without gardens
Pride	22 survey	5 survey
Responsible Behavior	13 survey	3 survey
Real World Educational Application	28 survey	19 survey
Nutrition Enhancer	15 survey	6 survey
Calming	19 survey	4 survey
Sustainability	19 survey	12 survey
Relationship-Builder	9 survey	1 survey
Aesthetics	12 survey	2 survey

One such benefit was an increase in pride; many teachers reported that their students had more pride in the work they were doing outside as compared to other class work/projects they have done. Students see 'real' results in their hard work and it develops a sense of accomplishment. This was especially reported as being true at schools where students were able to donate the food or bring it home for their families if they were in need. Staff and faculty reported that even if students did not partake in the work associated with the nature site, some still seemed to be proud of the fact that their school has one. This sense of pride can help enforce ownership and responsibility. Many teachers anticipated this and some even reported that students who had trouble in the classroom were less difficult outside in the nature site as their responsibility for class work increased. There were a couple of participants from schools with nature sites who reported that some students see time spent outside as play time and it was difficult to have them focus on the content at hand. However, the majority of participants at schools with nature sites said that their students focused better outside and exhibited better behavior. They attributed this to a sense of feeling less pressured outside and in general having a scenery change. The pride, responsibility, and behavioral changes seem to fit into a larger concept many participants from schools with and without nature sites mentioned as a benefit, namely that the nature site is a space that is both calming and energizing. As said, there seems to be less pressure outside and thus many students and teachers feel they can relax. One counselor reported that they take students out to the garden when they are working with them and they often observe their anxiety and stress reduce to where they are able to better talk through things. At the same time, the space is energizing in that students are more excited about what they are doing. One participant

said their students who have a lot of energy redirect it in a more productive manner in the garden as it is related to class work. Another participant said that the garden helped boost attendance because their students did not want to miss out on a chance to work in the garden.

Participants who are at schools with and without gardens alike reported that nature sites are or would be an enhancer or compliment to classroom content. This was said in particular with natural sciences but other content areas like art, stress management, history, and English were mentioned as well. One participant identified themselves as a French teacher and said they were able to grow herbs and incorporate it into French food for a language club. Another participant, a history teacher, said they used the garden in part to focus on the history of food. Overall, participants thought that a nature site would be hands-on and help students learning in general. Participants at schools with gardens said this was one of the positive remarks they would often hear from parents and students. With it being hands-on and outdoors there were many mentions of having “real world” relevancy, supporting the importance of classroom content as it demonstrates applications in the “real world”. By having vegetable and/or habitat gardens, students are able to develop a skill which is sustainable and can continue to be used throughout their lifetimes. Participants said a garden supports students by focusing on them as a whole person.

A holistic focus on students incorporates eating behaviors and nutritional intake of students. The ability to teach about nutrition and even incorporate produce from gardens into lunches were identified as benefits to having a school garden by participants at schools with and without gardens. Some said they saw eating habits among their

students improve, students were able and willing to try new foods that came from the garden or incorporated it into the food item. At one school, a few teachers noted that students rarely choose to eat the salads offered in the cafeteria but when they used produce from the garden in the salad then more students would eat it. In some situations, students in need of food were able to take produce home or grow and harvest food in the summer for their family. Some participants at schools without gardens suggested this as being a possible benefit of having a school garden. In addition to trying new foods and having the opportunity to eat healthier, participants said that students have become more aware of the benefits of organic and non-GMO produce. Additionally, students learned to just have more respect for the Earth and to care for nature as they worked with it more and could grow plants they did not have at home. This environmental awareness and sustainability appreciation was a positive remark by parents and students at schools with gardens, as reported in staff and faculty responses.

Lastly, a perceived benefit shared from one participant at a school without a garden was gardening being a tool to improve team-building. This benefit was largely shared by participants at schools with gardens. Students learned how to cooperate with each other better and how to better manage their participation in group work. Students exhibited greater appreciation for other's work. The nature site also was a relationship builder as students who regularly worked in the garden developed stronger relationships with their teachers and in some cases community members. Several schools had community partners or individuals who volunteered to help maintain the garden so students were able to work with them. One participant mentioned sometimes when they were working on the garden, people would be out and interested in what was going on so

they would stop and talk with the students about their garden. Thus, a school garden is not just beneficial to the students but in some cases whole families and their communities, as food gets donated and relationships grow in the garden.

Many people reported that a school nature site does or would make the school look nicer and that they would enjoy just sitting in it or looking at it. A nature site can certainly be beneficial in its pleasing aesthetic. However, some challenges were associated with this benefit as well.

Challenges

Challenges associated with school gardens Identified By	Schools with Gardens	Schools without Gardens
Maintenance Expectations	9 survey	3 survey
Sharing Work	22 survey	13 survey
Staff Buy-In	0 survey	8 survey
Community Support	3 survey	4 survey
Funding	2 survey	21 survey
Connecting to Standards	2 survey	9 survey
Space	5 survey	9 survey
Weather/Seasons	6 survey	3 survey

One issue experienced by schools with and without gardens is associated with different expectations around the look of a nature site. In some cases, schools with gardens had spaces that were mowed over because they did not look “kept” though it had purposefully been set up as a wild section for use in a science class. Other issues

associated with maintenance have been experienced as maintenance workers worry that nature sites will not be kept up and then fall back on them or just not having clear distinctions in what is a part of the garden and what is not. Aside from this communication with maintenance, upkeep of school gardens in a more broad sense is a significant challenge schools face. At some schools, there were only a few staff or faculty members really managing the garden and taking care of it, though there were more people using the garden. This takes a lot of time which is a challenge reported by participants in schools with and without gardens. During the summer months it can be difficult to coordinate care of the garden while students are not there and many staff and faculty may travel. Even during the day, if students do not go outside it can be difficult to find time to do some of the daily upkeep required. As multiple participants noted, teachers are already pressed for their time and energy, so asking a considerable amount more from them is difficult.

This may correlate with why it is difficult to get staff buy-in. Schools with and without gardens face issues associated with needing all or most hands on deck in support of the work of the garden. Many schools with gardens rely on one or two people to really advocate for and share the importance of the nature site. Schools without gardens repeatedly mentioned not having a leader or leadership team as a reason for not starting a garden. These schools also mentioned not having enough support across staff and faculty. Interestingly, participants from these schools mentioned being worried about parent and community support whereas participants from school with gardens did not mention this as a challenge. One school reported that they did not have a garden because the one they

originally had was vandalized and destroyed so, perhaps knowledge of this contributed to the worry around not having community support.

Another challenge faced by both schools with and without gardens was in regards to funding. This seemed to be a bigger issue for schools without gardens though as it was cited many times as a reason for not having a garden at all.

Participants at schools with gardens expressed concerns around connecting work in the garden to state standards. One participant even shared that in addition to being worried about time in the garden possibly taking away from core content they were worried about other teachers and/or administrators judging them based on how much time the class spends outside the typical classroom. Some teachers also shared that they did not feel confident enough to incorporate gardening into their lessons because they themselves do not feel they know enough.

A big challenge that many participants at schools without gardens face is finding space for a garden. Additionally, a few participants mentioned that the soil around their school was dry so it was not an ideal space to try to garden. And lastly, weather was a concern, as one participant put it, “Ohio weather” specifically seemed to serve as a deterrent to implementing a school garden.

Interestingly, weather was reported by faculty and staff at schools with gardens as a source for negative comments from students and parents but not listed as a challenge. For instance, there was concern that there was not enough shade, sometimes kids would get muddy, sometimes it was cold or wet on days where garden time had been planned, and sometimes there just were not enough days which were warm and dry to enjoy and/or use the garden.

Five River's Metro Parks

Participants at schools where gardens are present were asked how helpful Metro Parks was in the implementation and sustainability of their school garden. There were many people who were unsure or unaware of the program altogether and therefore were unable to comment. One person shared that they had met with people from the Green Schoolyards team in a large group and were told misleading information, as they had followed certain steps in order to get funding but then were told that it was a misunderstanding. Because of this, that participant dis-associated from the program and continued working on the garden without them.

The other participants' comments as far as helpfulness of the Metro Parks with their school gardens were positive but there were not many detailed responses in how they helped. The most common way in which participants said the Metro Parks helped was in regards to sharing information about getting started and ideas on how to incorporate gardens into the classroom. A few participants mentioned that they even had some people from the Green Schoolyards team come out and conduct programs for the students, which allowed staff and faculty to see what they were doing and how they were incorporating the garden into educational activities. A couple of participants also shared that the team has been able to help connect them with partners which was helpful in finding volunteers and securing funding. One participant even mentioned that the Green Schoolyards team has shared what their school is doing with others and invited them to come present about it for other schools.

A couple other ways in which the Green Schoolyards team helped with implementing and maintaining a school garden was by helping with soil testing, setting up compost and wood chips and providing tools and plants.

Participants at schools without gardens shared ways in which they believed Metro Parks could help them begin and sustain a school garden. Even if they did not know much about the program, participants were asked what they think they would need. Unsurprisingly, money and materials were responses in terms of needs for both creating and maintaining a school garden. However, a lot of what was wanted or needed for starting a garden was also information. Participants said they would want to know more about how a garden works, how to start one with some sort of checklist for starting, and resources available to them through the Green Schoolyards program and through any other community resource. They also said that information to the entire school would be helpful in addressing how a garden could benefit the school and community as well as staff training so they could all learn some basics about local plants, average growth time, etc. Participants also said they would want to hear about how to incorporate a school garden into the curriculum to meet state standards and even be provided some lesson plans as a kick start to this.

The other things participants said would be helpful in getting started is having some sort of point person or leader to plan out the garden and do a bulk of the work. Provision of volunteers in getting some initial work done like setting up composting was also reported. Lastly, schools needed encouragement.

In order to maintain a school garden, participants offered some other ways in which they believed Metro Parks could be helpful. There was still a desire for more

information; suggestions were around regular program information and coming to evaluate the garden and give tips for improvement or giving in-person consultations. One participant actually said that they would like the students themselves to be trained by the Green Schoolyards team so as to make work with faculty and staff at the garden more collaborative and put some of the onus on the students. Similarly, multiple participants said for ongoing support it would be helpful if they were offered assistance and/or if the team could come in and present or teach a class once.

Again, volunteers and funding were mentioned as being necessary to continue a school garden and the volunteers were mentioned more in regards to the summertime.

Some participants mentioned that a lot of the barriers to starting a garden are internal and not something they believe the Metro Parks could necessarily help with.

Discussion

The Metro Parks Green Schoolyards team and the researcher wanted to know if and how the Green schoolyards team could improve based on experienced and perceived benefits and challenges of schools in regards to school nature sites.

Many benefits found or reported were consistent with the literature. However, there was a large focus in previous research on the existence and effects of neo-liberalism being tied to school gardens. Though there were some instances where the garden was used to provide food for students and their families if they were in need, it did not seem to advance a neo-liberal concept of all the onus being on the individual. Rather it encouraged a skill which resists negative effects of the failure of the state in ensuring healthy and affordable food is available for residents of all parts of Dayton. As was mentioned, in addition to developing the skill of gardening many students felt a lot of pride and enjoyment for what they were doing.

Another common benefit was generally students who tended to have more behavioral problems in the classroom did better outside in the garden. This seems to support Richard Louv's notion of the Nature Deficit Disorder because as students spent more time outside, many behavioral problems subsided or decreased. This may have been also a result of increased time spent collaborating or working with peers and community members and just having more pride in this work.

Students' eating behaviors were seen as improving or at least their knowledge around healthy eating habits increased as a result of a school garden. In previous literature childhood obesity is a real concern, especially in the early 2000's, and school gardens were revealed as a way to combat the health issues by serving as an educational

tool. Though some students may not have been able to completely change their diet to be healthier, especially if some of the more healthy foods were not always available to students, there were more students trying produce they had never seen or tasted before.

There were many suggestions for how the Metro Parks can serve or help schools working on implementing and incorporating nature sites at their school from participants. One of the biggest issues seem to be that people have no idea what resources are available through the Green Schoolyards program and based on this some participants did not offer information on what they would need or like. Many responses from participants listed resources that would be helpful to them which are already made available through the Green Schoolyards program. This is significant in showing that much of what the program offers is seen as being valuable by staff and faculty at schools but they just don't know about it. In order to address this issue, increased communication among and within schools would be helpful. When the Green Schoolyards program gets a contact from a new school it may be advantageous to email the person and ask to come and speak to all or majority of staff and faculty, citing this research which reveals staff buy-in is really important in undertaking a garden and many people might feel better connected and supported to the garden if they are on the same basis as far as their understanding of the program and resources available.

It is clear that connecting schools to possible grant and/or partners is helpful, especially because funding and time/upkeep were two of the common challenges of for schools with and without gardens. However, it is very important the team communicate grant and/or partner opportunities as not being guaranteed and not determined by them (unless it is) to avoid developing expectations that they cannot control, as this can lead to

mistrust of the program and burn bridges between them and school(s). One school mentioned that they were happy the team would invite them to present about their school gardening work. Thus, in addition to connecting schools with other outside partners and grant opportunities it may be advantageous in connecting schools with each other based on similar challenges being faced, hopes for the future sites, type of school, etc. This could alleviate pressure on the Green Schoolyards team in providing extra care to all schools and allow for collaboration among schools, offering advice and sharing best practices. Staff and faculty may have a better understanding of politics around challenges counterparts are facing at other schools. One participant offered to share their science and math lesson plans which incorporated the garden with the researcher; unfortunately there was no contact information to reach out for this, but it still shows willingness to share and help other educators within and across schools.

Overall, continuous encouragement is needed from the Green Schoolyards program. Though this may look different for everyone, something like an email asking how the school garden is going or a visit with tips for improvement and also gratitude for the work faculty and staff are doing might help boost morale, especially when they may be facing issues internally in regards to the garden as some participants noted in addition to the other pressures and challenges educators face.

Limitations

Though this research certainly provides knowledge of benefits and challenges schools experience as a result of starting and maintaining a garden and gives suggestions based on this for the Metro Parks, it is important to note limitations. Mainly, only 11 schools out of 50 who had at least one contact with the Green Schoolyards team had voices

represented in the study. Approval had to come from principals or superintendents and there are many possible reasons why some would not see the emails, respond, or deny approval. Additionally, the principals or superintendents who did give approval then were relied on to forward on the researcher's email with the survey links and invitation to participate. Thus, some may have missed the emails, forgotten to send them out, or decided they no longer wanted their staff and faculty to participate in the survey and/or interviews. Moreover, some principles or superintendents decided to only send the email to a few staff and faculty whereas some forwarded it to the entire school. Thus, there were certain voices within schools that were not given the opportunity to be heard by the way the email was distributed. All in all, the results and implications reflect the shared experiences of the participants but caution should be taken in terms of generalizing the data to all schools Green Schoolyards have spoken with or all schools within the Dayton region.

Future Research

This study looked at faculty and staff's perceptions, understandings, and experiences in regards to the three research questions asked. This offered a lot of information for the Metro Parks Green Schoolyards team in terms of advocating for school gardens based on benefits reported and also understanding challenges in order to improve support and assistance for faculty and staff. It would be interesting in the future to interview students and parents at schools both with and without nature sites to gauge their attitudes on school gardens, as this may offer up more ways the Green Schoolyards program could help faculty and staff help their students.

Appendix

Thesis Survey: School Nature Site

Assessing the Five Rivers' Metro Parks Green Schoolyards Program

* Required

What school do you work at? *

1. Do you know about the Five Rivers' Metro Parks Green Schoolyard Program? *

- Yes, I have a very good understanding of what it is
- Somewhat, I could explain the basics of it to other faculty
- Somewhat, I have heard about it in conversation
- No, I have never heard of it
- Other:

2. Does your school currently have a nature site (Garden and/or Habitat)? *

- Yes, answer questions 3-10
- No, answer questions 11-16

Please answer the following questions if your school has a nature site; skip to the next page if your school does not.

3. Have you been able to incorporate the nature site into your classroom? If yes, how?

4. Have you heard students or parents reference the nature site? How frequently do you hear references to the nature site?

5. What are some of the positive remarks you have heard from students and/or parents regarding the nature site?

6. What are some of the negative remarks you have heard from students and/or parents regarding the nature site?

7. Have you noticed any behavioral changes in students which you believe correlate with participation in the school nature site? If so, please explain.

8. Have any challenges arisen with the nature site? What are they and how have you managed them or not managed them so far?

9. Have you observe any benefits which you believe correlate to the school garden that is not explained in a previous question already? If yes, what are they?

10. If you answered yes to question to #1, How helpful was Five Rivers' Metro Parks' Green Schoolyards program in preparing for and sustaining the nature site?

Please answer the following questions if your school does NOT have a nature site; skip to the next page if your school does.

11. What are some reasons you believe your school has not developed a nature site?
12. Do you see a need or strong desire for a school nature site? Explain why or why not.
13. What are some of the challenges or barriers to creating and sustaining a school nature site you perceive?
14. What are some of the benefits of a school nature site you perceive?
15. Is there anything Five Rivers' Metro Parks could do to support your school in creating a nature site? Note: If you are unfamiliar with Five Rivers or with the Green Schoolyards Program please answer in general terms of what you think your school may need.
16. Is there anything Five Rivers' Metro Parks could do to support your school in sustaining a nature site? Note: If you are unfamiliar with Five Rivers or with the Green Schoolyards Program please answer in general terms of what you think your school may need.

Thank you for participating!

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